

Annual Report

Fiscal Year 1999

Lower Snake River Compensation Plan Office

Boise, Idaho

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┆ The Lower Snake River Compensation Plan Office was established with the closing of the Boise Area Office in September 1982. The Office's primary responsibility is to administer U.S. Fish and Wildlife Service (FWS) operations, maintenance, and evaluation funds (OM&E) for cooperator fisheries operations under the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP).

The LSRCP was authorized by the Water Resources Development Act of 1976 (90 Stat. 2917) to replace fish and wildlife losses caused by the construction and operation of Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Lock and Dam projects on the lower 150 miles of the Snake River in Washington and Idaho. The plan described fish hatchery developments as well as improvements to the dams and powerplants to improve smolt passage.

Construction responsibility for the LSRCP was assigned to the Walla Walla District, U.S. Army Corps of Engineers (Corps), while responsibility for fish hatchery OM&E funding was to be accomplished by "one of the Federal fisheries agencies." In 1977 the Corps, National Marine Fisheries Service (NMFS), and FWS signed an agreement stating that the FWS would budget for and administer OM&E funds for LSRCP fish hatchery programs.

Public Law 99-662, approved November 17, 1986, modified the Water Resources Development Act of 1976 in accordance with recommendations contained in a report from the Chief of Engineers, dated March 6, 1985. The Chief's 1985 report confirmed the 1977 NMFS/FWS agreement on Page 2, Section 4.d with a directive which stated: "The U.S. Fish and Wildlife Service should be designated to fund the operation and maintenance of all fish rearing facilities." Regarding ownership of property, the 1985 Report stated in Section 5.3: "Transfer of jurisdiction over all Compensation Plan fish hatcheries, appurtenant facilities and lands to the U.S. Fish and Wildlife Service for operation, maintenance, and replacement shall occur upon completion of construction by the Corps of Engineers." The Corps is transferring fee title of LSRCP hatcheries and associated satellite facilities to the FWS as they are completed and fully operational. Ownership of nearly all hatcheries and satellites has been transferred to the FWS.

The Corps' estimated cost for construction of the authorized LSRCP off-project fisheries facilities (hatcheries and related satellite facilities) is about \$200 million; the FWS costs for annual OM&E are about \$12.5 million. All anadromous compensation and most resident fisheries compensation are allocated to project power costs and are reimbursed to the U.S. Treasury with interest by the Bonneville Power Administration (BPA) from power revenues.

The 1976 LSRCP legislation authorized what was believed to be sufficient anadromous fish hatcheries and associated trapping and holding facilities to produce enough smolts to return 18,300 fall chinook adults, 58,700 spring and summer chinook adults, and 55,100 steelhead adults back to the project area, and sufficient resident fish hatcheries and stream enhancement projects to produce 93,000 pounds of trout annually to replace lost resident sport fisheries in Washington and Idaho. The program required expansion or construction of 11 hatcheries and 12 satellite facilities in Idaho, Oregon, and Washington. Idaho Department of Fish and Game (IDFG) operates four

hatcheries, Oregon Department of Fish and Wildlife (ODFW) operates three hatcheries, Washington Department of Fish and Wildlife (WDFW), formerly Washington Department of Wildlife and Washington Department of Fisheries, operates three hatcheries, and FWS two hatcheries. The Pittsburg Landing, Big Canyon, and Captain John Rapids Acclimation Facilities, authorized by a Congressional add-on to the Corps LSRCP Program, were completed in 1996, 1997, and 1998 respectively; their OM&E costs are directly funded by BPA and are operated by the Nez Perce Tribe (NPT).

HIGHLIGHTS FOR FY1999

LSRCP facilities continue to produce and release salmon, steelhead and resident trout as part of their mitigation responsibility. In Fiscal Year (FY)1999, 14,978,770 salmon, steelhead and rainbow trout weighing 1,905,245 pounds were reared and released from LSRCP facilities. The numbers, pounds of fish produced, release sites, and sizes were adjusted again in 1999 to reduce impacts on listed species.

The LSRCP releases in 1996 and 1997 contributed significantly to the 1998-99 run of 86,217 steelhead above Lower Granite Dam. This run was similar to that of the last three years (86,680, 86,898, and 79,321). Although not all data are available, we believe the LSRCP portion of the run was close to the adult steelhead mitigation goal of 55,100 steelhead adults back to the project area. Oregon, Washington, and Idaho had fall and spring sport fisheries and steelhead were available to the tribes in their various fisheries. Approximately 6,929,343 steelhead fingerlings and smolts (1,400,948 lbs) were released from LSRCP hatcheries in spring 1999 compared to a release of approximately 5.90 million release in 1998. Magic Valley Fish Hatchery (FH) produced the most smolts, releasing 1,941,406 weighing 471,608 pounds.

Considerable LSRCP staff time in FY1999 was spent on Endangered Species Act (ESA) consultations and modifications of biological assessments of hatchery production and release actions on listed Snake River spring/summer and fall chinook, sockeye salmon, Columbia River salmonids, and bull trout. Fish hatchery production was and will continue to be adjusted where appropriate to meet ESA requirements.

The LSRCP staff and cooperators carried out their fifth year of captive broodstock programs in Oregon and Idaho. These programs were measures initiated with LSRCP program funding to conserve listed salmon stocks for future mitigation sources. Due to the lack of a LSRCP budget increase to cover costs associated with ESA related activities in FY1998 and FY1999, LSRCP cooperators applied for and obtained direct funding from BPA to continue the programs. Without a LSRCP budget increase to cover costs associated with these programs, all future program approval and funding for the captive programs will fall under the Northwest Power Planning Council's (NWPPC) prioritization and funding process. A Chinook Technical Oversight Committee (TOC) was initiated in FY1997 to address technical issues dealing with the chinook captive broodstock programs. The Chinook TOC was modeled after the existing Sockeye TOC and meets every other month.

The LSRCP Office prepared a draft FWS/BPA direct funding agreement which, if finalized and signed in late 1999, would allow the LSRCP Program to be directly funded by the BPA starting with FY2001. Such an agreement would result in the first significant funding increase for LSRCP OM&E activities since 1991. The Corps' and Bureau of Reclamation's reimbursable programs are already funded through direct funding agreements signed over the past three years. Without a direct funding agreement, the LSRCP budget in FY2000 will remain at the 1999 level, using remaining carryover funds to meet emergency needs.

LSRCP staff, state agencies, and tribal cooperators continued to work with NMFS in FY1999 to renegotiate the Columbia River Fish Management Plan (CRFMP) under US v Oregon. Co-managers clearly identified agency and tribal production and harvest positions, although little progress was made in reaching agreement on a number of policy level issues. The existing CRFMP expired without agreement among co-managers and efforts were redirected toward reaching a fall harvest agreement for implementation of the fall fishing season. Negotiations are scheduled to continue in early FY2000 with efforts focusing on developing the framework for the CRFMP and an agreement on the winter/spring fishery. The process is very important because it will determine how the LSRCP and all other Columbia River Production Programs will be implemented for the next CRFMP period (the current plan lasted 10 years).

The LSRCP office initiated meetings with co-managers in late FY1999 on development of the Grande Ronde River Basin Hatchery Genetics Management Plan (HGMP) for the steelhead program to meet the December 15, 1999 deadline in the Biological Opinion on hatchery operations in the Columbia River Basin. A number of policy level issues remain unresolved and will likely preclude reaching agreement on development of the HGMP by December 15, 1999.

The LSRCP staff once again played a leadership role in planning and implementing the *IDAHO SALMON AND STEELHEAD DAYS*. The event occurred on September 8-10, 1999 and consisted of three student days and one evening of activities. About 3,500 4th grade students along with hundreds of teachers and parents from SW Idaho attended and learned about the biology of Idaho's anadromous fish resource. An evening barbecue with entertainment and education activities was once again part of the venue in 1999; over 500 people, mostly adults, enjoyed the grilled salmon.

FY 1999 LSRCP PROGRAM FUNDING SUMMARY

The LSRCP Office obligated \$13,354,110 in FY1999 (\$1,529,537 from carryover funds). This total included:

- \$8,373,804 to three state cooperators for hatchery operations and maintenance and pathology;
 - \$2,265,818 to five state and tribal cooperators for monitoring and evaluation studies, PIT tags, and ESA requirements;
 - \$1,442,915 to six FWS projects for operations, fish health, monitoring, and evaluations;
 - \$377,000 for Boise LSRCP Office management and coordination;
 - \$460,000 to the Regional Office and FWS for administrative and financial accounting costs;
- and

- \$234,573 in non-LSRCP funds to WDFW and IDFG for flood damage, fuel tank replacement, and resident fish rearing.

A total of 14,978,770 salmon, steelhead and rainbow trout weighing 1,905,245 pounds were stocked from LSRCP facilities in FY1999 (Table 1).

OPERATIONS AND MAINTENANCE

A total of \$9,767,292 was obligated to WDFW, ODFW, and IDFG or transferred to Dworshak NFH, Hagerman NFH, and Dworshak Fish Health Center (DFHC) for operation and maintenance and fish health monitoring of 11 hatcheries, 14 associated satellite facilities, and a fish health lab (Table 1). Below are brief summaries of hatchery operation and maintenance activities in FY1999. Tables 1, 2, and 3 provide additional data on funds obligated by station and activity, fish stocked, productions targets, construction costs, and hatchery/trap returns.

Clearwater Anadromous Fish Hatchery - Idaho

Clearwater Fish Hatchery was the last of the 12 hatcheries to be completed under the Corps' LSRCP construction program. The hatchery, operated by the IDFG and is located across the North Fork of the Clearwater River from Dworshak NFH, is designed to produce (with its three satellites) 1,369,500 spring chinook smolts weighing 91,300 pounds and 2,500,000 steelhead smolts weighing 350,000 pounds. The adult return goals for the program are 11,915 spring chinook salmon and 14,000 steelhead to the Snake River basin.

The Clearwater FH is located on land (17.5 acres) purchased by the Corps in 1989. Construction of Clearwater FH began in August 1989 and was completed by the end of 1991. The water supply line was tested in November 1991, and steelhead eggs from Dworshak NFH and rainbow trout for resident fisheries program were supplied to Clearwater in 1992 for the first rearing cycle.

The Clearwater FH receives its entire water supply from Dworshak Reservoir via two pipes. The primary (and largest) line takes water from just below the reservoir's surface while a secondary (smaller) line receives cold water from an intake deep below the water surface. A distribution tank near the hatchery allows mixing of the water from the two lines to select proper temperatures for various uses at Clearwater FH and also provides a water supply line to Dworshak NFH.

Three satellite fish facilities are associated with the hatchery: Red River, completed in November 1986; Powell, completed in the summer of 1989; and Crooked River, completed in the spring of 1990. Red River, Crooked River and Powell are now being operated as rearing, release, and trapping facilities using fish from Clearwater FH.

Red River trapped 31 spring chinook (4 wild and 27 hatchery origin) in 1999 compared to 90 in 1998, 280 in 1997 and 62 in 1996. Twenty four fish were released in Red River to spawn naturally. Crooked River was operational for the tenth year of trapping; a total of 125 spring chinook (3 wild and 122 hatchery origin) were trapped and 55 were released to spawn naturally in

Crooked River. This compares to a Crooked River return of 277 in 1998, 1,034 in 1997 and 299 spring chinook trapped in 1996. In 1997, Red River and Crooked River stocks were combined to make the South Fork Clearwater stock due to straying of hatchery chinook between the two drainages. A total of 6 females were spawned resulting in 21,739 green eggs.

IDFG trapped adult chinook at the LSRCF facility off of Walton Creek (a Lochsa tributary) and for the second year on Crooked Fork Creek to assess hatchery strays. A total of 188 fish were trapped at both sites (8 wild and 180 hatchery origin). A total of 8 fish were released to spawn naturally in Colt Killed Creek (a White Sands Creek tributary). This compares to in 541 in 1998, 718 in 1997 and 186 trapped in 1996. Twenty-seven females were spawned resulting in 759,060 green eggs.

Ten steelhead (3 wild and 7 hatchery origin) were trapped at the Crooked River trap in 1999, with 8 released above and 2 below the weir. No steelhead were trapped at Red River. Traps at both sites were pulled frequently due to high flows and debris during 1999. Walton Creek has no steelhead program.

Clearwater FH received Rapid River stock spring chinook eggs from adults trapped at Lower Granite Dam and spawned at Lyons Ferry FH resulting in a total of 759,060 green eggs for the Clearwater and NPTH programs. An additional 889,200 BY 1999 spring chinook eyed eggs were received from Dworshak NFH for rearing to smolts at Clearwater FH and release in the spring of 2001.

A total of 1,410,510 Brood Year BY 1997 spring chinook weighing 97,981 pounds were released from Red River and Powell satellite facilities, Papoose Ck (part of the Idaho Supplementation Study), and Walton Ck. from March to October 1999. Approximately 164,280 South Fork Clearwater spring chinook weighing 6,567 pounds were released in September 1999 into Red and Crooked rivers. About 642,912 BY 1997 spring chinook weighing 36,084 pounds were released into Newsome, Mill, Meadow, Lolo, and Boulder creeks from March to July 1999 for the Nez Perce Tribal Program. A total of 591,004 BY1998 North Fork Clearwater strain steelhead smolts weighing 113,532 pounds were released into Clear Creek and the South Fork Clearwater River in April 1999. In addition 4,993 BY1998 N.F. Clearwater strain steelhead (845 lbs) were released into the South Fork Red River in April for supplementation studies.

The Clearwater FH is currently holding approximately 1.349 million BY1998 spring chinook fingerlings and 737,920 BY1999 steelhead fingerlings for production and release from the hatchery and satellite facilities in 2000. In addition approximately 0.855 million BY1998 spring chinook eggs (includes 0.732 million Rapid River stock) are on hand for transfer or release in 2000 and 2001.

Magic Valley Fish Hatchery - Idaho

Magic Valley FH is located on the Snake River near Filer, Idaho, and is operated by IDFG. It was completed in August 1987 and is designed to produce 2,000,000 steelhead smolts weighing 291,500 pounds annually. The return goal for Magic Valley FH is 11,660 adults back to the Snake River basin.

The hatchery was constructed on a commercial hatchery site that was purchased by the Corps in March 1981. Steelhead have been produced for the Magic Valley program since 1982. Until 1985 fish were produced onsite in a commercial facility; however, with the start of construction, fish production was transferred to unused raceways at Hagerman NFH (approximately 255,000 steelhead smolts were reared at Hagerman in 1986 for the Magic Valley program). Sawtooth FH and the East Fork Salmon River satellite serve as the juvenile release and adult trapping sites for the hatchery program.

Magic Valley FH completed its twelfth rearing season in 1999, and released 1,121,504 Dworshak "B" (258,983 lbs) and 819,902 Pahsimeroi "A" (212,625 lbs) strain BY1998 steelhead smolts in April and May 1999. The releases were distributed in the East Fork Salmon River, Squaw Creek Pond, Stinky Springs, Shoup Bridge, Red Rock Access, Tunnel Rock, Sawtooth FH, Lemhi Hole, Cottonwood Access, McNabb Point, and Squaw Creek. In addition, 21,851 BY1998 Dworshak "B" steelhead (5,329 lbs) were removed from Squaw Ck. acclimation pond and 106,950 BY 1998 Oxbow steelhead (3,450 lbs) were for use in catchable plants or stocked in Oakley and Salmon Falls Ck. reservoirs. Magic Valley currently has 2,143,119 BY1999 steelhead fingerlings on hand for release in 2000.

McCall Fish Hatchery - Idaho

Operated by IDFG, McCall FH was completed in 1981 and is located along the North Fork Payette River near McCall, Idaho. The program's adult trapping facility and the smolt release site are located on the South Fork of the Salmon River near Warm Lake (salmon do not have access to the Payette River system). McCall FH is designed to produce 1,000,000 summer chinook smolts weighing 61,300 pounds. McCall FH is the only LSRCP summer chinook facility and its adult return goal is 8,000 adults to the Snake River basin. In addition to LSRCP program activities, McCall FH is cooperating with the NPT with early implementation of their Johnson Creek (BPA-funded) project; and IDFG has a trout production/distribution program at McCall that is funded entirely by the IDFG.

The hatchery achieved considerable success with its summer chinook program from 1986 through 1993, ranging from 939 to 2,848 fish trapped each year. Typical of the lower chinook runs throughout the basin, McCall's returns decreased in 1994 and 1995 to only 517 and 408 fish. From 1996 to 1998, 1,199 (461 adults and 738 jacks), 3,659 (3,614 adults and 45 jacks) and 974 (898 adults and 76 jacks) summer chinook were trapped respectively at the South Fork Salmon weir. In 1999 a total of 1,961 (1,218 adults and 743 jacks) summer chinook were trapped at the South Fork facility. Four hundred twenty seven females were spawned producing 1,892,572 green eggs. A total of 272 fish were released above the weir and 62 released below the weir to spawn naturally in 1999.

The McCall FH staff released 1,182,611 BY1997 summer chinook salmon smolts (49,481 lbs) in April and 49,872 BY1998 summer chinook fingerlings (333 lbs) in August into the South Fork Salmon River in 1999. The Nez Perce Tribe released 213,618 BY1998 summer chinook fingerlings (3,322 lbs) into tributaries of the South Fork Salmon in 1999. These releases are slightly above the hatchery's release target of 1,000,000 smolts. McCall currently has 821,389 (reserve HxH crosses) and 195,479 (supplementation (listed) HxW crosses) BY1998 summer

chinook fingerlings on hand for release in 2000. There is currently 1,359,934 BY1999 eggs on hand for fingerling and smolt releases in 2000 and 2001 in the South Fork Salmon River and Johnson Creek. The Shoshone Bannock Tribes received 120,339 eyed (reserve) BY1999 eggs for stream-side incubators in the South Fork Salmon drainage.

Sawtooth Fish Hatchery - Idaho

Sawtooth FH, located on the upper Salmon River near Stanley, was completed in January 1985 and is operated by IDFG. Its primary mission is to rear 2,235,000 spring chinook salmon smolts weighing 149,000 pounds and trapping steelhead ("A" strain) for Hagerman NFH and Magic Valley FH; the hatchery staff has also been operating a satellite facility on the East Fork of the Salmon River since 1983. The satellite was designed to trap adult spring chinook for Sawtooth FH and steelhead ("B" strain) for Hagerman and Magic Valley and to serve as a direct stream release site. The program's goal is to return 19,455 adults to the Snake River basin.

Spring chinook trapping at Sawtooth FH produced a total of 196 adult and jacks in 1999 compared to 153 in 1998, 254 in 1997, 156 in 1996, 37 in 1995, 96 in 1994 and 587 in 1993. The East Fork trap was not operated for spring chinook broodstock in 1999. Numbers of jacks trapped were up in 1999 with a total of 79 (40.3% of the total trapped) at the facility. As part of ESA Section 10 conditions for operation, the hatchery staff released 129 spring chinook above the Sawtooth weir (compared to 92 in 1998, 112 in 1997, 94 in 1996 and 20 in 1995). Twelve females were spawned from Sawtooth FH returns resulting in 59,373 eyed eggs.

A total of 105,951 BY1997 chinook supplementation (listed) smolts (4,740 lbs) and 117,442 reserve smolts (5,266 lbs) were released into the Salmon River at the hatchery weir in April. Sawtooth currently has a total of 125,011 BY1998 chinook (7,697 lbs) on hand for release in 2000 and 59,127 BY1999 chinook eggs on hand for release in 2001.

A total of 933 steelhead returned to the Sawtooth trap in 1998 compared to 768, 1,243, 553, 532 and 338 trapped in 1998, 1997, 1996, 1995 and 1994 respectively. The East Fork satellite facility trapped 56 steelhead, compared to 27 in 1998, 149 in 1997, 54 in 1996, 38 in 1995, and 73 in 1994. A total of 364 females were spawned from Sawtooth and 16 females from the East Fork Salmon resulting in 1,526,046 green eggs from Sawtooth and 62,442 green eggs from the East Fork Salmon sites.

A steelhead acclimation/release pond was constructed on Squaw Creek in the fall of 1997. The pond was stocked with steelhead smolts in the spring of 1999 for IDFG's second consecutive year volitional release program. Of the 100,000 smolts planted into the pond, an estimated 69,172 smolts migrated into the Salmon River. The remaining 30,828 smolts were transported to other non-anadromous sites or left in the pond for resident trout angling. In future years the pond will also be used as an adult steelhead trapping site with first returns expected in the year 2000.

Sawtooth FH shipped a total of 846,915 BY1999 Sawtooth steelhead eggs to Hagerman NFH and 520,074 BY1999 Pahsimeroi, 57,954 BY1999 East Fork "B"-run, and 390,989 Sawtooth steelhead eggs to Magic Valley FH for rearing and release in 2001. In addition a total of 925,434 Pahsimeroi and Sawtooth eggs were shipped to the Shoshone Bannock Tribe for their streamside incubators.

This year marked the 5th year of a captive rearing program for the Lemhi River, East Fork Salmon River, and West Fork of the Yankee Fork Salmon River. The strategy of the program is to prevent cohort collapse of the specific target populations by ensuring (with releases of captively-reared adults) that there are a minimum of 20 pairs of adult spawners in the natural environment on an annual basis. In the fall 1999, parr were collected from the West Fork Yankee Fork, Lemhi River, and East Fork Salmon River. All fish collected are reared initially at Sawtooth FH, transferred to Eagle FH, and then split between Eagle and NMFS's Manchester, WA saltwater facility. The progeny of these broodstock will be raised at Eagle FH for subsequent release as mature adults back into their rivers of origin.

This was the third year of captive spring chinook outplants with the release of six captive-reared females and one captive reared male into the East Fork Salmon River. All fish were radio-tagged and tracked during the spawning period. A total of 35 captive-reared Lemhi River females (ages 4 and 5) and 28 captive-reared Lemhi River males (ages 2 and 3) were released into Bear Valley Ck. (tributary to Hayden Ck, tributary to Lemhi R.) to monitor spawning behavior and success.

Eyed eggs from brood year 1999 natural spawners were collected from the East Fork Salmon River and Lemhi River. In addition, 191 BY1998 Lemhi River, 229 BY1998 West Fork Yankee Fork, and 185 BY1998 East Fork Salmon River parr/presmolts were collected.

In addition to Sawtooth's LSRCP program, IDFG cooperates with the SBT, BPA, NMFS, and other agencies in a FWS-approved sockeye salmon restoration project at Sawtooth FH. The project is funded by BPA and is an effort to recover the endangered sockeye run. In 1995 a catchable trout holding and distribution program out of Sawtooth FH was instituted to stock local waters; that project was funded entirely by IDFG.

Irrigon/Wallowa Hatcheries - Oregon

Irrigon FH is located on the Columbia River near Umatilla, Oregon, was completed in October 1985, and is operated by the ODFW. Collector wells designed for 25,000 gallons per minute (gpm) supply water for the program which targeted to rear 1,677,000 steelhead smolts weighing 279,600 pounds. Irrigon FH's return goal is 11,200 adults back to the Snake River basin.

An expansion of ODFW's Wallowa State Hatchery was completed in May 1985; it serves as a final rearing, acclimation, and release site for about 600,000 steelhead smolts from Irrigon FH and has facilities for steelhead trapping and spawning. In 1999 a total of 1,168 steelhead (637 females and 531 males) returned to the Wallowa FH. A total of 491 females were spawned from Wallowa and Big Canyon steelhead returns resulting in 2,482,381 green eggs.

Two other advanced rearing and trapping sites, which are satellites of the Irrigon FH, became operational in 1992. Big Canyon satellite, located at the mouth of Deer Creek on the Wallowa River, was completed in April 1987 and is capable of holding and releasing 225,000 smolts. Five hundred sixty-two adult steelhead (391 females and 171 males) returned to Big Canyon satellite in 1999. A total of 39 wild adult steelhead (14 females and 25 males) were released to spawn naturally.

The Little Sheep Creek satellite station in the Imnaha basin is used as an advanced rearing pond and release site for 250,000 steelhead smolts reared at Irrigon FH. The satellite was completed and became operational in August 1987. In 1999, 332 steelhead (174 females and 158 males) returned to the Little Sheep Creek trap with 122 (53 females and 69 males) released to spawn naturally. One hundred twenty seven females were spawned producing 606,740 green eggs.

Releases for 1999 of Irrigon-reared fish totaled 335,671 BY1998 Imnaha steelhead smolts (61,750 lbs), 5,015 BY1998 Imnaha steelhead (85 lbs) fingerlings, 149,990 BY 1999 Imnaha steelhead fingerlings (1,200 lbs), and 1,388,293 BY 1998 Wallowa steelhead smolts (272,112 lbs). This included smolt releases from Irrigon's satellites Big Canyon, Little Sheep Creek, Wallowa, and Imnaha as well as fingerling releases in the Big/Little Sheep Ck. basin. This number is similar to last year due in part to requirements under ESA to lessen impacts on listed salmon. Irrigon currently has 981,776 BY1999 Wallowa, 332,842 BY1999 Imnaha steelhead and 27,542 BY1999 Rapid River spring chinook (from unmarked adults) on hand.

Lookingglass Fish Hatchery - Oregon

This hatchery is located on Lookingglass Creek north of Elgin, Oregon, and was completed in November 1982. It is designed to produce 1.4 million spring chinook smolts weighing 69,600 pounds and is operated by the ODFW. Two satellites, Big Canyon Creek (discussed above) and a renovation of Oregon's Imnaha River trapping site near Gumboot Creek, which was completed in 1989, are part of the hatchery program. The Snake River basin return goal for the Lookingglass FH program is 9,070 adults.

Adult spring chinook trapping at the Imnaha River trap totaled 396 (76 females, 133 males, and 187 jacks) compared to 383 fish collected in 1998 (163 females and 220 males). One hundred twenty chinook (36 females, 63 males, and 21 jacks) were released to spawn naturally. Thirty seven females were spawned resulting in 128,777 eyed eggs.

In 1999 all Rapid River spring chinook collected at Lower Granite Dam were trucked to Lyons Ferry FH (WDFW). All Rapid River stock spring chinook returning to Lookingglass FH (total return of 26 females and 40 males) that were reared from marked parents were transported to the Lyons Ferry FH. Hatchery-reared Rapid River adults that were progeny of unmarked parents and unmarked (naturally-produced) adults were transported to the South Fork Walla Walla facility (CTUIR) for spawning. A total of 25,040 BY 1999 green eggs were taken from eight females and are being incubated and reared at Irrigon FH. These fish are scheduled to be released into Lookingglass Creek. In 1999 all eggs from marked parents that were transported to Lyons Ferry FH will become part of the Nez Perce Tribal program.

The fourth year of the endemic brood program was continued in the upper Grande Ronde River, Catherine Creek, and Lostine River in 1999. Temporary weirs were installed on each stream. Only one spring chinook was collected at the upper Grande Ronde River weir (released to spawn naturally), 16 at the Catherine Creek weir (released to spawn naturally), and 12 at the Lostine River weir (released to spawn naturally). A total of two Lostine River spring chinook (1 female and 1 male) were transported and held at Lookingglass FH as potential broodstock. It was determined that return numbers were insufficient to initiate an endemic program on any of the three populations in 1999 and all surviving fish were returned to their streams of origin. A total

of 11,871 BY1997 Lostine River smolts (642 lbs) were released into the Lostine River in April by the Nez Perce Tribe from their BPA-funded portable acclimation raceways.

A total of 312,145 BY1997 Rapid River stock spring chinook smolts (14,473 lbs) and 57,290 BY1998 Rapid River stock spring chinook fingerlings (450 lbs) were released into Lookingglass Creek in April and June 1999 respectively. About 194,967 BY 1997 Imnaha River stock spring chinook smolts (10,691 lbs) were released into the Imnaha River in April 1999. Due to a lack of chilled well water at Lookingglass FH, all BY1999 Imnaha green eggs were shipped to Oxbow (74,539) and Irrigon (94,391) FH's. All eyed eggs will be reared at Irrigon FH. Lookingglass FH currently has on hand 90,400 BY1998 Imnaha fingerlings (4,127 lbs) for a 15 fish/lb release; 89,832 BY1998 fingerlings (3,529 lbs) for a 25 fish/lb release; 35,148 BY1998 Lostine River fingerlings (1,415 lbs); 1,573 BY1998 upper Grande Ronde fingerlings (73 lbs); and 38,149 BY1998 Catherine fingerlings.

This year marked the 5th year of the captive broodstock program for the Lostine River, Catherine Creek, and the upper Grande Ronde River. A total of 1,498 wild spring chinook parr were collected from the Lostine River (498 parr), Catherine Creek (500 parr), and the upper Grande Ronde River (500 parr) in 1998. This compares to 1,500 collected in all three tributaries in 1998, 1,496 collected in 1997, 979 collected from the Lostine River and Catherine Creek in 1996 and 1,107 collected in the three tributaries in 1995. This is part of a conservation program to maintain various chinook populations for ultimate use in recovery of listed stocks under ESA and to enable the LSRCP to return to their compensation responsibilities in the future. All are reared initially at Lookingglass FH, and then transferred to either the Manchester facility (salt water) in Washington or Bonneville FH (freshwater) in Oregon for rearing to maturation and spawning by at Lookingglass FH. The progeny of these broodstock will be raised at Lookingglass FH for subsequent release as smolts back into their rivers of origin.

Lyons Ferry/Tucannon Fish Hatchery Complex - Washington

Located at the confluence of the Palouse and Snake rivers, the Lyons Ferry facility is two hatcheries in one. Phase I, completed in November 1983, was initially operated by Washington Department of Wildlife (WDW). It is designed to produce 1,169,500 steelhead trout smolts weighing 116,400 pounds and 45,000 pounds of rainbow trout with an adult return goal to the basin of 4,656.

Phase II of Lyons Ferry facility was completed in November 1984 and was initially operated by Washington Department of Fisheries (WDF). It is designed to produce 9,162,000 fall chinook smolts weighing 101,800 pounds, and 132,000 spring chinook smolts weighing 8,800 pounds. Lyons Ferry FH's adult salmon return goals are 18,300 fall chinook and 1,148 spring chinook to the basin. Recently, the State of Washington combined WDW and WDF into a single agency, Washington Department of Fish and Wildlife (WDFW). These two facilities along with Tucannon FH are now under one complex manager and operated as a unit.

A renovation of Tucannon State Fish Hatchery was completed in November 1984 to rear an additional 41,000 pounds of rainbow trout for the LSRCP and to serve as an adult trapping and smolt release site for their Tucannon River spring chinook program. The remaining 7,000 pounds of rainbow trout production stipulated in the compensation plan (the total requirement is 93,000

pounds) is to come from stream enhancement structures funded by the Corps. These structures were constructed by WDW in several SE Washington streams in the early 1980's.

The hatcheries along with the steelhead satellite facilities at Cottonwood Creek, Dayton Pond, and Curl Lake were completed from 1983 to 1986. The two fall chinook adult holding ponds at Lyons Ferry FH were found to be unmanageable and were rehabilitated by the Corps in 1993. Each pond were divided into two units by construction of a dividing wall down the center, providing much more versatility for handling and sorting adults. Additional office space at the Lyons Ferry steelhead facility was constructed in 1992 by adding 400 square feet onto the administration building. This work was done by the WDFW personnel. The road to the Marmes pump site, which was originally constructed with large cobbles was smoothed and graded by hatchery personnel.

Spring chinook returns to the Tucannon trap and weir totaled 137 in 1999 compared to 93 in 1998, 259 in 1997, 135 in 1996, 40 in 1995, and 73 in 1994. Three hatchery origin adults were released above the weir to spawn naturally. One hundred twelve adults (102 hatchery and 10 natural) and 25 jacks (24 hatchery and 1 natural) were retained for spawning and produced 132,000 green eggs. A total of 24,186 BY1997 Tucannon spring chinook (1,548 lbs) were released into the Tucannon River in April 1999. There are currently about 143,740 BY1998 Tucannon River chinook (7,777 lbs), and 143,733 BY1998 Spokane rainbow trout (13,818 lbs) on hand for release in 2000.

This year adult fall chinook were trapped at the Lyons Ferry FH and Lower Granite Dam and transported to Lyons Ferry FH for holding and spawning. A total of 2,047 fall chinook voluntarily entered the hatchery in 1999 compared to 1,194 in 1998, 1,311 in 1997, 2,256 in 1996, 956 in 1995, 972 in 1994 and 1,332 in 1993. An additional 1,567 were captured at Lower Granite Dam compared to 927 in 1998, 293 in 1997, 703 in 1996, and 327 in 1995. A total of 2,071,200 green eggs were collected in FY1999, only from known Lyons Ferry fall chinook. A considerable effort was necessary during spawning to ensure that only Snake River fall chinook adults were used for broodstock. All coded wire tags were read before spawning to ensure that the Snake River genetic stock is maintained. Strays from programs outside the basin were inadvertently used prior to 1990. The new concerted effort to spawn only Snake River stocks with each other is of particular importance because the fall chinook are listed as endangered under the ESA. All eggs from strays identified at spawning (318,600 eyed eggs) were shipped out of basin to another WDFW facility. Lyons Ferry currently has 918,405 BY1998 fall chinook (41,524 lbs) on hand for release in 2000.

Because of the potential for large numbers of stray steelhead that return to the Lyons Ferry ladder in the fall (when it remains open for fall chinook returns) all trapped steelhead are checked for Lyons Ferry brands. In FY1999, 2,973 steelhead returned to the hatchery compared to 5,947 in 1998, 5,598 in 1997, 5,920 in 1996 and 4,009 in 1995. A total of 1,140,813 green eggs were taken from the 228 females spawned. One thousand five hundred fourteen steelhead were released. Approximately 605,440 BY1999 Lyons Ferry stock steelhead (35,139 lbs) remain on hand for release in 2000. In addition a total of 248 Wallowa stock steelhead were trapped at the Cottonwood Creek satellite facility compared to 450 in 1998, 224 in 1997, 430 in 1996, and 460 in 1995. One hundred twenty-nine females were spawned for the WDFW program, resulting in

625,039 green eggs. About 603,440 fingerlings (49,462 lbs) are on hand for rearing and release in 2000.

In 1999 Lyons Ferry FH released a total of 432,166 BY1997 fall chinook yearlings (51,881 lbs) and 204,194 BY1998 subyearlings (4,171 lbs.) into the Snake River at Lyons Ferry. In addition, a total of 535,215 BY1997 yearlings (46,581 lbs) and 710,229 BY1998 subyearlings (6,614 lbs) were transferred to the three NPT-operated acclimation sites (see below) and 46,610 yearlings (825 lbs) were transferred to research projects for release. A total of 24,886 BY1997 Tucannon spring chinook (808 lbs) were released into the Tucannon River as smolts.

A total of 567,732 BY1998 Lyons Ferry steelhead weighing 127,425 lbs, 268,803 BY1998 Wallowa steelhead weighing 62,513 lbs, and 342,613 BY1998 Lyons Ferry and Wallowa steelhead weighing 6,415 lbs were released from Lyons Ferry FH, hauled to Cottonwood acclimation pond, trucked directly to the Tucannon and Walla Walla rivers, or released into inland lakes. Lyons Ferry and Tucannon FH's combined, reared and released 393,828 catchable (8 to 9 inch) and sub-legal rainbow trout for Washington lakes and streams and the Idaho Program.

Pittsburg Landing, Big Canyon, and Captain John Rapids Acclimation Sites

As noted above the Pittsburg Landing, Big Canyon, and Captain John fall chinook acclimation and release facilities were completed by the Corps in 1995, 1996, and 1998 respectively and were operated by the NPT in cooperation with WDFW. The facilities receive fall chinook from Lyons Ferry FH for acclimation and release. In 1999, 145,364 BY1997 yearlings (12,642 lbs) were transferred to Pittsburg Landing, 232,341 BY1997 yearlings (20,703 lbs) and 351,562 BY1998 subyearlings (3,307 lbs) were transferred to Big Canyon, and 157,510 BY1997 yearlings (13,236 lbs) and 358,667 BY 1998 subyearlings (3,307) were transferred to Captain John Rapids.

Dworshak National Fish Hatchery Expansion - Idaho

Dworshak NFH is located at the confluence of the North Fork and Clearwater rivers. An expansion of the existing Dworshak NFH steelhead facility for LSRCF spring chinook production was completed by the Corps in November 1982. The FWS facility is designed to produce 1,400,000 spring chinook smolts weighing 70,000 pounds. The adult return goal for Dworshak is 9,135 spring chinook to the Snake River basin. This increased Dworshak's chinook rearing potential by about 20,000 pounds, for a total of 90,000 pounds. This additional rearing effort was shifted to the Clearwater FH in FY1992.

Spring chinook runs in the Clearwater River in 1999 totaled 957 fish returning to the Dworshak/Kooskia Complex, compared to 1,323 in 1998, 4,807 in 1997, 1,165 in 1996, 165 in 1995 and 305 adults in 1994. In addition there were an estimated 36 Dworshak spring chinook taken in the tribal harvest and one Kooskia spring chinook taken in the tribal harvest. There was no sport harvest of spring chinook in 1999 in the Clearwater River. A total of 89 females were spawned producing 337,857 green eggs. The Dworshak Program currently has approximately 939,710 BY1999 Dworshak and 450,373 BY1999 Kooskia spring chinook on hand for release in 2001.

Hagerman National Fish Hatchery - Idaho

Hagerman NFH, located on a 59°F spring water supply from the Snake River aquifer east of Hagerman, Idaho, was expanded by the Corps to rear 1,400,000 steelhead smolts weighing 340,000 lbs. Hagerman NFH also retained the capacity to produce 100,000 lbs of fish for FWS production commitments for programs other than LSRCP. The expansion was completed in April 1984 and is operated by the FWS. Hagerman NFH has a goal of returning 13,600 adult steelhead to the Snake River basin.

Hagerman NFH received a total of 1,453,962 BY1999 steelhead "A" eggs composed of Sawtooth (899,442) and Oxbow (554,520) stocks this year. No Dworshak or East Fork "B" eggs were received.

In April 1999 Hagerman NFH released 1,131,400 BY1998 steelhead smolts weighing 238,805 pounds into the Little Salmon River, Salmon River at Sawtooth FH, and to acclimation ponds at Sawtooth FH. An additional 78,606 steelhead (36,725 lbs) were planted into Little Camas Reservoir in May. Hagerman currently has 753,603 BY1999 Sawtooth stock (25,147 lbs) and 452,271 Oxbow stock (22,573 lbs) on hand.

MONITORING AND EVALUATIONS

MIn 1999 \$2,580,102 was obligated for monitoring and evaluation studies to IDFG, ODFW, WDFW, FWS Idaho Fishery Resource Office (IFRO), and the NPT and Confederated Umatilla Tribes (CTUIR). Below is a brief overview of the FY1999 evaluation program followed by a synopsis of state, tribal, and the FWS IFRO programs. Results of LSRCP-funded evaluation studies are available in our cooperator's annual reports; a listing of reports is found in the *Available Reports* Section below.

Program Overview

The Evaluation Study Committee (ESC) is an eight-member workgroup consisting of the LSRCP Office evaluation studies coordinator and a single representative from each cooperating agency and tribe: IDFG, ODFW, WDFW, FWS-IFRO, NPT, CTUIR, and SBT. Each year since 1985 the group has met for an annual program review and issue discussion meeting; and, in addition, several partial committee meetings are held each year to discuss specific topics, such as budget and study proposal modifications. The annual meetings often include additional staff members from each agency/tribe and occasionally visiting experts.

The ESC had one meeting in FY1999. Discussion topics included: the Independent Science Review Panel (ISRP) review, Section 7 biological assessments, steelhead program changes in response to listings, Columbia River Fish Management Plan renegotiations, and discussion of the 1998 Symposium. Rick Williams, an ISRP member, attended part of the meeting to discuss the

review. Using guidance provided by Dr. Williams, the LSRCP Office and its cooperators produced a summary of the program for ISRP review. Their review was not detailed and no changes were recommended to the NW Power Planning Council for their report to Congress.

The LSRCP Program received a Biological Opinion for 1995-1999 LSRCP Operations (BO) in 1995. Although our overall program remained essentially unchanged, the LSRCP Endangered Species Coordinator, Joe Krakker, along with agency/tribal evaluation biologists dedicated a considerable amount of time preparing and submitting several biological assessments requesting minor changes. The LSRCP Office submitted modifications to the BO to include newly listed steelhead populations (Snake River and Upper Columbia River ESU's) in December 1997 and for releases of excess Imnaha River steelhead in August 1998. The LSRCP Office also initiated consultation with the FWS in October 1998 on listed bull trout in the Columbia River basin.

In 1996 a multi-agency Conservation Program Oversight Team was formed by the LSRCP Office to guide LSRCP efforts to initiate captive brood/rearing programs for conservation of listed stocks. This team continued to function until December 1997 when it achieved its primary goal of coordinating initial development of plans (and permit applications) and implementation of the projects, and determined it was no longer necessary to meet as a group. By FY1998 all funding for the captive programs had been assumed by the BPA through the NWPPC's Fish and Wildlife Program, making coordination by the LSRCP Office less important. Coordination among the captive programs continues through the Chinook Salmon Technical Oversight Committee. That group is coordinated through and facilitated by BPA and their meetings are held in conjunction with similar meetings of the Redfish Lake sockeye TOC.

Idaho Department of Fish and Game

IDFG's LSRCP Fish Hatchery Evaluations-Idaho includes three separate projects--*Hatchery Evaluations*, *Hatchery-Wild Composition of the Idaho Steelhead Harvest*, and *Coded-Wire Tag Analyses*. Idaho's evaluation program goals are to: 1) ensure that accurate and adequate monitoring of hatchery practices occurs so the most cost effective mode of operation for each hatchery is implemented, and 2) determine the LSRCP contribution to fisheries and escapement. Specifically, the *Hatchery Evaluations* studies include monitoring and evaluation of hatchery rearing; size, time, and location of releases; and adult returns. These types of studies are long-term because constant monitoring is required to identify problems before they result in catastrophic fish losses and to determine which hatchery rearing and release practices will result in the best adult returns.

Several evaluation studies initiated in previous years to address specific hatchery problems and needs were continued in 1999. Production groups of salmon from all LSRCP programs were PIT-tagged to determine migration timing and interrogation rates at Snake and Columbia river dams. IDFG collected scales from known chinook hatchery adults (i.e. those tagged as juveniles) and wild fish and used scale patterns to identify hatchery fish for broodstock and other management purposes. Production and test groups were marked (CWT'ed and fin clipped) and returns are used to assess survival rates (by sex and age).

IDFG evaluations and hatchery personnel continued their assessment of natural rearing experiments on chinook at Sawtooth and Clearwater FH's initiated in 1993. They are relying on

CWT's and PIT's of BY1992 through BY1994 releases to assess effects of various raceway alterations and other rearing conditions on juvenile and adult survival. The final returns from BY1994 should be in 1999. In October 1997 IDFG attended a NATURES workshop and, based on that workshop and additional coordination with NMFS, began testing NATURES rearing at Sawtooth FH with BY1997 chinook which were released this FY. Volitional release studies at Sawtooth FH and the Crooked River facility occurred in 1994 and 1995, and in 1997 IDFG completed analyses of the PIT tag data associated with the releases. Their findings will be reported in their annual report.

IDFG has completed analyses of detection data from South Fork Salmon River summer chinook salmon time of release studies. IDFG completed analysis of the "environmental cue" data for comparison with detection data and will report their findings for their annual report. They will also look at need for additional controlled studies. Also in 1997, IDFG reported results monitoring data compiled to evaluate of the efficacy of outplanting adult summer chinook to historic spawning grounds in the South Fork's Stolle Meadows area. Those extensive monitoring surveys were not continued in 1998 or 1999.

Steelhead acclimation studies continued as adults returned from acclimated (21 days) and control groups reared at Hagerman NFH and released at Sawtooth FH. In 1998 IDFG evaluation personnel designed and implemented a volitional release study for an acclimation pond on Squaw Creek whose construction was funded by NMFS. Those studies continued in 1999. IDFG, IFRO, and Hagerman NFH personnel began a feeding/rearing study in 1997 at Hagerman to determine the efficacy of meeting steelhead size restrictions at facilities in the Hagerman Valley; those cooperative studies continued in 1999.

In late 1984, Idaho began an angler survey to assess the LSRCP contribution to Idaho's steelhead fishery, estimate the total escapement of LSRCP fish, recover information on marked fish, and obtain data for managing the fishery while protecting wild stocks. In 1998 pre- and in-season run projections were provided. This survey is also the major means of recovering adult steelhead tagged as fingerlings under other evaluation studies. These efforts were funded through 1999 and will be continued annually (at some level) until compensation goals have been met, and periodically thereafter. In 1998 a survey was conducted to monitor a fishery on hatchery-reared adult chinook salmon produced at Dworshak NFH; a final report was completed on those chinook fisheries in 1999.

The process of reading tags and analyzing marks was first funded in 1992 as part of the evaluation study, whereas actual marking costs remain a part of each hatchery's budget. In 1998 several hundred tags (many recovered under the Harvest Study described above) from several state and tribal LSRCP programs were removed from fish and decoded at IDFG's Lewiston lab.

Oregon Department of Fish and Wildlife

ODFW's evaluation program includes: 1) monitoring and evaluating hatchery practices; 2) investigating size, time, and location of release of hatchery-reared juveniles; 3) marking activities (CWTing, branding); 4) assisting with disease monitoring efforts; 5) determining the LSRCP contribution to Oregon's steelhead fishery; 6) determining the effects on natural spawning populations; and 7) determining the success of maintaining the genetic integrity of native wild

stocks potentially effected by the LSRCP program. The following paragraphs describe specific studies *beyond* the routine juvenile rearing, adult return, spawning ground, and ESA monitoring and reporting duties.

ODFW compared the influence of size-at-release (4 versus 5 per pound) on survival to adult of summer steelhead released at Wallowa FH. BY's 1986 through 1990 were tested, the last adults returned in 1995, and harvest information was finalized in 1996. In 1997, data were summarized, statistics were completed, and report preparation was initiated.

In 1996, ODFW completed its sixth release of acclimated versus direct stream releases of steelhead at Little Sheep and Big Canyon creeks. Similar studies at Wallowa FH were completed with the release of smolts in 1991. Adult return data from previous releases were compiled and assessed in 1997. The last returns resulting from size at release studies at Wallowa FH were in 1994 and the results of that study are in the final stages of report preparation. The last returns from the Big Canyon and Little Sheep releases will arrive in 2000.

ODFW began pilot studies in FY1996 with BY1995 fish to compare smolt-to-adult survival and juvenile outmigration performance of summer steelhead smolts released volitionally with standard releases. These efforts are an offshoot of ODFW's 1991 through 1995 studies to monitor the characteristics and interaction of residual steelhead on listed natural chinook in several NE Oregon streams, determine strategies to reduce the number of residual steelhead, and develop a strategy to implement new steelhead management plans. Field studies associated with this pilot project will continue with ODFW's effort to characterize yearly variation in the relative abundance of juvenile residual steelhead in index areas and to describe the characteristics of steelhead which residualize. Detailed volitional studies began with the release of BY1996 fish in 1997 and will be completed with the BY2000 releases from Wallowa FH and the Big Canyon facility in 2001.

In 1997 ODFW began monitoring natural spawning of summer steelhead in NE Oregon and assessing the relationship between anadromous and resident forms of *O. mykiss*. These efforts were expanded in 1999 to include collection of samples for genetic analyses. ODFW and their tribal co-managers hope to learn more about the characteristics/relationships of the various populations in NE Oregon and about the fate of hatchery adults that escape to their river of release but are not caught at traps or by anglers. Findings from this and the other studies will help determine if hatchery populations can be and should derived from local resident populations.

In 1998, ODFW initiated studies to compare migration timing and survival of various crosses among and between anadromous and resident forms using BY1998 and 1999 adults. BY1998 crosses were PIT-tagged, released in spring 1999, and compared to Wallowa stock releases. The studies will continue at least with BY1999 fish currently being reared. In a related study, ODFW began experimenting with BY1998 steelhead to determine the feasibility and protocol of reconditioning kelts from Deer Creek and Little Sheep Creek at Wallowa FH. That effort continued with the six to eight BY1999 returns.

Chinook acclimation versus direct stream release studies, initiated at the Imnaha facility with BY1990 progeny releases, continued with releases of BY1993 juveniles in 1995. Data from adult returns were collected and analyzed; the five-year-olds from BY1993 returned in 1998. A final report was drafted in 1999.

Spring chinook size at release (25 vs 15 fpp) experiments were initiated with BY1988 Imnaha fish and, with the exception of BY1993 releases, were continued with releases of BY1996 smolts in 1998. The last size at release experiments from Lookingglass FH (Rapid River stock) occurred in 1992. Outmigration timing and survival and adult return rates of past releases are currently being compiled and evaluated for both Imnaha and Rapid River stocks. The last BY1996 releases will return in 2001.

Although a density experiment using Rapid River stock chinook reared at 50 percent of normal densities was not continued with releases in 1995 or 1996, collection of adults released as juveniles in 1993 and 1994 continued at Lookingglass FH. A similar study was initiated in 1995 using BY1994 Imnaha stock at Lookingglass FH to compare rearing densities from 1/4 to 1/8 of normal. Although this effort continued in 1998 with releases of BY1996 fish, full production will prevent tests from continuing with the 1997 brood. Adults were collected in 1999 from releases in 1996 and 1997.

An exercise study was conducted in 1994 - 1996 using Rapid River brood. Adults from those studies were collected in 1999 and data are being compiled and analyzed.

In 1990 a study was initiated to develop a discriminate function model based on scale growth patterns to allow identification of hatchery and wild-origin adult salmon at Lower Granite Dam and points above (e.g. hatchery racks, spawning grounds). This effort was continued in FY1999.

ODFW, CTUIR, and NPT personnel continued their collaborative effort to collect juvenile spring chinook salmon from three Oregon streams and maintain the captive propagation program initiated in 1995. As noted above, ODFW evaluation personnel joined other LSRCP cooperators in 1996 to form a technical committee for dealing with LSRCP-funded captive propagation efforts and formed a local integrated team to serve the coordination needs for the effort in Oregon. ODFW evaluation personnel took the lead on monitoring and evaluating the Oregon captive populations in 1995 and continued this effort in 1999, participating in state/NMFS/tribal chinook technical meetings held in conjunction with a sockeye TOC meeting.

Washington Department of Fish and Wildlife

WDFW's evaluations of fall and spring chinook are combined under one multiple-objective study including: 1) monitoring and evaluation of hatchery practices, juvenile outputs, adult returns (including homing studies), and contribution to fisheries; 2) time, size, and location of release (including acclimation) studies; and 3) evaluation of effects of hatchery releases on naturally producing chinook stocks (including parr density monitoring and spawning ground counts). Because the hatchery stocks are comprised entirely of endemic fall and spring chinook stocks, special attention is being paid to quantifying and monitoring genetic variables in each population. The following paragraphs summarize some of WDFW's efforts in 1998 *beyond* their ongoing fish culture monitoring programs and ESA monitoring and reporting duties.

WDFW evaluation and hatchery staffs continued efforts to ensure that fall chinook broodstocks retained at Lyons Ferry FH contain no non-endemic fish by identifying the origin of fall chinook broodstock captured at Lower Granite Dam and returning to the hatchery ladder. All Lyons Ferry

FH fall chinook releases are being marked so Lyons Ferry origin adults can be identified in future returns.

WDFW continued their ongoing efforts to determine smolt outmigration timing and relative survival from Lyons Ferry (fall chinook) and Tucannon (spring chinook) FH's. Their fall chinook efforts were expanded in 1996 and continued in 1999 to include monitoring and evaluating outplants from the Pittsburg Landing, Big Canyon (Clearwater), and Captain John Rapids facilities.

This was the second year for adult returns from the Pittsburg outplants. The evaluation of these sites is a joint WDFW/FWS/NPT effort funded by BPA and will continue.

A study was initiated in 1993 to evaluate the effectiveness of outplanting spring chinook adults and psmolts to increase spawner density in the upper Tucannon River. In 1996 all adults were collected at the Tucannon River weir and retained for hatchery spawning and rearing; therefore, no adults were outplanted above the weir. A larger run in 1997 allowed outplanting of radioed adults, which were monitored through the spawning season. Direct stream fingerling releases were evaluated in the fall of 1994; and, in the spring 1996, yearling juveniles were released from portable acclimation ponds above Tucannon FH, directly into the river above Tucannon FH, and from the Tucannon FH ponds using a volitional release strategy. In 1997, 1998, and 1999 juveniles were released from Tucannon FH, Curl Lake, and (a small release) into the river at Curl Lake. Juvenile migration success and adult survival of all release strategies are being compared using PIT tagged juveniles and CWT'ed adult returns.

Other studies initiated in previous years and continued in 1999 included 1) documenting juvenile spring and fall chinook rearing, releases, outmigration timing (both in the Tucannon River and downstream for spring chinook), and relative survival; 2) determining the extent and cause of prespawning mortalities of adult spring chinook; 3) estimating production and migration timing of naturally-produced Tucannon River spring chinook; 4) collecting spring and fall chinook stock profile data (meristic, morphometric, electrophoretic monitoring); and 6) evaluating success of cryopreserving spring and fall chinook milt. WDFW evaluation personnel assisted in designing a captive broodstock program for Tucannon spring chinook for submission to the NW Power Planning Council for funding under the Fish and Wildlife Program. Juveniles are currently being reared for a captive brood program.

WDFW's Steelhead Evaluation Study includes objectives for evaluating both the steelhead and resident trout hatchery programs, with the steelhead objectives having the highest priority and requiring virtually all the funding. The hatchery evaluations and related field studies at Lyons Ferry and Tucannon FH's have been underway since 1983 when the steelhead and trout production programs were initiated. The 1999 objectives continued many of the directions initiated in 1990 regarding developing new broodstocks, improving hatchery management practices, and modifying juvenile steelhead release strategies.

As noted above, development of endemic steelhead broodstocks is a recent goal of the program which should help reduce residualism and improve homing to the rivers of release. WDFW captured wild broodstock on the Tucannon River in 1992 and 1993 for rearing, release, and comparison to existing hatchery broods during migration (with PIT tags) and at adult return. No adults were collected in 1994 or 1995 when efforts to trap adults in Cummings Creek (a Tucannon

River tributary) failed due to high flows. Although a similar program was delayed for Touchet River in 1992, the logistics of trapping and handling fish were tested there in 1993, 1994 and again in 1995. In 1996 flood problems eliminated any attempts and no fish were trapped in 1997. In 1999 WDFW monitored adult steelhead returns to the Tucannon, Touchet, and Cottonwood Creek weirs.

Other studies initiated in previous years and continued in 1999 included: 1) estimating percent residualism of hatchery steelhead in the Tucannon and Touchet rivers; 2) estimating adult returns to fisheries, Lower Granite Dam, Lyons Ferry FH, and tributary spawning areas; 3) collecting baseline genetic information on wild steelhead populations; and 4) estimating naturally-reared juvenile population densities in index streams effected by LSRCP programs.

Nez Perce Tribe

The Nez Perce Tribe (NPT) initiated their Nez Perce Tribe LSRCP Evaluation Study in 1986 and continued it in 1999 to develop tribal stocking and outplanting priorities; monitor tribal harvest; evaluate effects of hatchery plants on native production; assist IDFG, ODFW, and FWS in their evaluation studies; and collect and preserve adult male chinook salmon sperm plasm. NPT evaluation personnel joined the LSRCP Office and other LSRCP cooperators in 1996 to form the CONSPOT for dealing with LSRCP-funded captive propagation efforts and, with the Oregon co-managers, formed a local team to serve the coordination needs for the captive program in Oregon. This effort continued until early 1997 when the CONSPOT determined regular meetings were not needed. The NPT participate in the 1999 Snake River spring/summer chinook TOC meetings facilitated by BPA.

In 1997 the NPT began a new study to monitor and evaluate releases of fall chinook from two new LSRCP facilities, Pittsburg Landing and Big Canyon on the Clearwater River. Captain John Rapids, completed in late 1997, was added to the study program in 1998. The objectives of the study are to compare pre-lease and release conditions, post-release behavior, migration timing, and survival of yearling fall chinook released at Pittsburg Landing, Big Canyon, Captain Johns Rapids, and Lyons Ferry FH. Because the NPT operates the Pittsburg Landing, Big Canyon, and Captain John Rapids facilities, their study efforts include solving fish culture problems and monitoring and evaluating the implementation and success of their overall program. Contribution and distribution of adult returns and smolt-to-adult survivals are being monitored and compared in cooperation with WDFW and FWS investigators. Starting in 1998 most of monitoring and evaluation and all of the operations and maintenance costs were funded under the NWPPC's Fish and Wildlife Program.

The Tribe's major field activities in 1999 involved the long term Imnaha River study. NPT continues to use two rotary screw traps in the Imnaha River to capture and PIT tag juvenile chinook. The Imnaha River study objectives in 1999 were to 1) determine the outmigration timing, travel time and recapture rate of spring migrating natural and LSRCP FH-produced chinook salmon and steelhead from the lower Imnaha River trap through the Snake River to Lower Granite Dam and 2) determine and compare timing, travel time, and recapture rates at Lower Granite Dam and other dams of natural chinook salmon that overwinter in the Snake River versus those that overwinter in the Imnaha River.

As a new effort for 1999, the NPT initiated a study of hydrologic characteristics of selected steelhead streams in the Imnaha basin. They began literature searches of past studies and planned field studies to determine flows and water temperatures of Lightning, Cow, Horse, Big Sheep, Freezeout, Gumboot, and Grouse Creeks.

Other studies initiated in previous years and continued in 1999 included coordinating planning, evaluation studies, and management recommendations; monitoring tribal chinook harvest of LSRCP stocks; conducting chinook salmon spawning ground surveys in selected streams; collecting and preserving male chinook gametes in Snake River tributaries using cryopreservation techniques; and monitoring the abundance of juvenile chinook and steelhead in stocked and unstocked streams.

Confederated Tribes of the Umatilla Indian Reservation

The Confederated Tribes of the Umatilla Indian Reservations (CTUIR) became cooperators in the LSRCP Program for the first time in FY1987. The CTUIR biologist assigned to the LSRCP program continues to be supervised by the LSRCP ODFW research coordinator because of the close coordination required for their joint studies in Oregon. In 1991 CTUIR initiated a program to evaluate the success of reestablishing a naturally reproducing population of spring chinook in Lookingglass Creek. A study plan was drafted in FY1992 and continued to undergo review and revision in 1993. The field program was initiated in 1992 with the release of Lookingglass FH/Rapid River stock above the weir and the monitoring of their movements and spawning effort. The Lookingglass Creek study objectives in 1999 were to: 1) evaluate the use of early life stage releases into Lookingglass Creek of progeny from unmarked salmon returns to Lookingglass FH, 2) determine the reproductive success of the 1997 brood of Rapid River stock adults that spawned naturally in Lookingglass Creek, and 3) assess the ecological interactions between spring chinook and their environment. All releases since 1998 have been and will continue to be pre-smolts from unmarked adult returns.

Fish and Wildlife Service -- Idaho Fisheries Resources Office

The IFRO was funded by the LSRCP program in FY1999 to conduct hatchery monitoring and evaluation studies at Dworshak and Hagerman NFH's. IFRO's on-hatchery program is similar to those conducted by the state agencies and tribes and is closely coordinated with IDFG and the NPT. Their study, Evaluation and Technical Coordination for FWS LSRCP Hatchery Programs, is a long-term effort designed to: 1) define and solve cultural and management problems affecting LSRCP success (adult returns), 2) provide intra- and interagency coordination, 3) determine fishery contribution and escapements of Dworshak and Hagerman NFH's LSRCP programs, and 4) aid the NFH's with the development and maintenance of a database system for hatchery management. The IFRO's LSRCP-funded studies are summarized in their annual report.

FISH AND WILDLIFE SERVICE COOPERATIVE PROGRAMS

F The LSRCP Office obligated \$225,900 to three other FWS programs which helped the LSRCP Program accomplish its FY1999 mission. The Dworshak Fish Health Center receives LSRCP funds for diagnostic activities at Dworshak and Hagerman NFH's and for health

monitoring coordination among State and Federally-operated LSRCP hatcheries. Additional monies were obligated in 1996 and 1997 so the Center could assist the WDFW and NPT with their health monitoring for the fall chinook outplanting program to Pittsburg Landing, Captain

Johns Rapids, and Big Canyon (Clearwater). The funding for that monitoring program was not provided by the LSRCP Program in 1999.

FY1999 monies were obligated to FWS's Office of the Columbia River Coordinator for their assistance to the LSRCP Office on regional issues, particularly with regard to those relating to the CRFMP renegotiations. Funding was also provided to Abernathy Salmon Technology Center for their assistance to the LSRCP Program on regional planning and gene conservation issues.

O **OTHER COOPERATIVE PROGRAMS**

The LSRCP Office works closely with all our cooperators to ensure that our programs compliment and sometimes supplement other anadromous fish programs they might be involved in. For example, the ODFW and IDFG have BPA-funded, Fish and Wildlife Program projects which must be closely integrated with LSRCP programs because of joint use of facilities (rearing space), people, and equipment. These include the captive brood and rearing programs in Oregon and Idaho, the Grande Ronde endemic stock programs in Oregon, IDFG's supplementation (ISS) studies, the Umatilla Hatchery, and the Redfish Lake sockeye salmon propagation program. The complexity of integrating these types of programs is becoming more and more difficult.

The LSRCP Office also works cooperatively with the states to implement a number of resident trout programs at no cost to the program. ODFW utilizes several raceways at Irrigon FH to temporarily hold catchable rainbow trout for release in eastern Oregon. IDFG uses Sawtooth and Clearwater FH's to act as distribution points for catchable trout stocking in surrounding waters, and in addition, McCall and Clearwater FH's rear resident trout for part of their life cycle. And lastly, cooperative agreements are in place with all State agencies for the temporary loan of equipment and vehicles between programs.

C **CORPS CONSTRUCTION ACTIVITIES**

The U.S. Army Corps of Engineers (Corps), Walla Walla District has completed cleanup items at facilities to be transferred in FY2000. Requests for these transfers are in the DOI Secretary's Office. Some operational problems still remain at the Captain John Rapids and Big Canyon Creek (Clearwater) fall chinook acclimation facilities. The Corps is making the necessary changes at Captain John Rapids and the NPT is negotiating with them to correct Big Canyon problems. Underground storage tanks (UST's) that the Service is requiring all facilities to replace is currently being accomplished by the Corps and the Service.

FUTURE OUTLOOK

The LSRCP Program is now approximately 18 years old and is fully underway. The Corps has in most cases done a good job in constructing and equipping LSRCP hatcheries and satellites facilities and, where problems have been experienced, the Corps has been willing to make the necessary repairs and changes in an attempt to help them reach their full capability. With the exception of the new fall chinook acclimation facilities, the Corps has completed most clean up contracts and is in the process of transferring facilities to the Service. We have recommended acceptance of these transfers based upon decisions and agreements reached with the Corps through our negotiations.

Although steelhead returns in 1997, 1998, and 1999 were higher coast wide and close to meeting our goals for the LSRCP mitigation program, getting steelhead to return back at the right time and to the right place still remains a problem in some areas. The listing of Snake River and upper Columbia River steelhead in 1998 required re-initiation of consultations with NMFS. The 1999 Hatchery Biological Opinion by NMFS stated that several LSRCP steelhead programs were jeopardizing listed steelhead. The Reasonable and Prudent Alternatives and Conservation Measures in the Opinion require that Hatchery and Genetic Management Programs be developed for several LSRCP programs and that other programs assess effects on listed species. Those programs that are jeopardizing require phasing into local, listed stocks in a given time frame. Where feasible and biologically sound, other programs will likely be converting to local steelhead stocks over the next few years and, as a result, operating under Section 10 conservation and enhancement permits.

Even though LSRCP hatchery chinook returns are higher than those of most naturally-produced (listed) fall and spring/summer chinook in the Snake River basin, we are not close to achieving programmed hatchery rates of return. Rearing and release strategies are continuing to be fine tuned and we hope the changes will improve this situation. Most LSRCP chinook facilities are now operating and, are likely to continue operating, under Section 10 enhancement and/or research permits under the ESA.

The LSRCP will continue efforts to maintain non-listed chinook salmon, steelhead, and rainbow trout programs for compensation of losses, ensuring that they do not jeopardize the listed stocks. However, as endemic stocks are developed for many programs and non-local stocks are phased out, compensation for losses to tribal and non-tribal fishers may be lower than desired for short period time.

Four years ago the LSRCP began funding cooperators for six captive rearing/broodstock programs in Oregon and Idaho as gene conservation measures to assist in recovery when mainstem passage problems were cited and to use those stocks as future broodstock sources for mitigation. As noted above, those programs are now funded by the BPA through the NWPPC's Fish and Wildlife Program. The LSRCP Office will continue to participate in the technical teams to address ongoing captive broodstock issues and other ESA issues as needed.

Hatchery monitoring and evaluation programs are being improved, redesigned, and refined each year to assist hatcheries in providing the best rate of return of released hatchery smolts. We substantially increased funding for this phase of the LSRCP program in BY1993 and continued

funding will be needed for an adequate hatchery evaluation program which ensures protection and enhancement of naturally reproducing populations.

We are optimistic that with normal precipitation, snow packs, etc. return rates of hatchery-reared steelhead in some basins may meet model predictions. The chinook salmon return rates and adult returns to the basin, however, are currently much below the level anticipated and used to design the LSRCP facilities. Only minor improvements in adult chinook return rates are expected with changes in production release strategies, increased disease treatment and prevention, and improvements in smolt emigration. Captive broodstock efforts, if successful, will develop critical culture expertise needed in the immediate future for conservation of listed Snake River species. If regional managers can implement measures that significantly increase the man-affected system productivity of listed populations, the captive brood efforts may be used in the future to assist in recovery and also as a brood source for LSRCP mitigation programs.

The LSRCP Office, with the cooperation of the BPA staff, hopes to complete an agreement to allow BPA to directly fund the LSRCP program beginning in FY2001. A schedule has been drafted to complete this effort by November 1999. The agreement will allow the first increase in base funding since 1991 when the LSRCP began relying on carryover funds to handle additional annual funding needs.

During FY2000 the LSRCP Office and its cooperators will continue to work with Columbia River basin co-managers to renegotiate the CRFMP. Although many current programs and perhaps some new programs will emphasize conservation of populations, the LSRCP will continue to attempt to compensate for losses associated with construction and operation of the Lower Snake River dams.

STAFFING

A total of 5.0 permanent full time (FTE) staff years are now being utilized for operation of the LSRCP Office. One FTE, the Cooperative Agreement Assistant position, was filled during FY1999.

LSRCP Boise Office employees as of September 30, 1999

Edouard J. Crateau, LSRCP Coordinator, GM-13

Daniel M. Herrig, Evaluation Study Coordinator, GS-12

Joseph J. Krakker, Fishery Biologist, GS-11

Tammy A. Froscher, Secretary, GS-6

Margaret M. Anderson, Cooperative Agreement Assistant, GS-6

MEEETINGS ATTENDED IN FY1999

10/7/98 Nez Perce fish production at Clearwater FH with IDFG and at Orofino, ID, Ed
10/8/98 Johnson Creek fish production program at McCall FH -- criteria and design for expansion of facility with NPT, IDFG biologists, Ed

- 10/28-30/98 Fish restoration symposium with Society for Ecological Restoration in Tacoma, WA, Ed
- 10/30/98 Meet with WDFW representation regarding LSRCP programs at Natural Resource building in Olympia, WA, ED
- 11/5/98 Meet with fisheries public information office regarding LSRCP programs with IDFG at headquarters in Boise, ID, ED
- 11/9/98 Meet with representations of ISRP in Boise to discuss LSRCP coordination, Ed, Dan
- 11/10/98 Meet with fisheries RO staff regarding NWPPC coordination, Ed
- 11/12/98 Dworshak coordination meeting at Dworshak NFH, Ed
- 11/13/98 Johnson Creek McCall FH expansion with NPT and IDFG in McCall, ID, Ed
- 11/16-18/98 USFWS hatchery and FRO project reviews and ethics training for Fish Project Leaders in Richland, WA, Ed, Dan
- 11/17-19/98 Columbia River Basin Multi-Species Framework Workshop in Portland, OR, Joe
- 11/19/98 Juvenile survival study - update on ongoing studies by COE, BOR, NMFS a Public Meeting in Boise, ID, Dan
- 11/23/98 Lookingglass FH Montgomery Watson review and determination of capacity with ODFW, NPT, CTUIR conference call, ED
- 12/24/98 Discuss SRT review of artificial propagation programs (Task 1) with FWS staff in Portland, OR, Dan
- 1/1-2/99 Attend USGS smolt workshop in Olympia, WA, Ed
- 1/6/99 Discuss Section 7 consultation and Section 10 permits with NMFS, ODFW, IDFG, WDFW, CTUIR, NPT, SBT, COE, BIA, BPA, CIA in Portland, OR, Joe
- 1/6/99 Lookingglass FH program review with NPT, CTUIR, ODFW, Montgomery Watson, at Natural Resource Center Sagebrush Conference Room in Boise, ID, Ed
- 1/6/99 BPA direct funding MOA meeting with RO fisheries staff and BPA, NWPPC Representatives in our office, Boise, ID, Ed, Dan
- 1/12/99 Lookingglass fish production review meeting with Montgomery Watson, NPT, CTUIR and ODFW, in Boise, ID, Ed
- 1/25-26/99 CRFMP Re-negotiations with Columbia River Basin co-managers in Portland, OR, Dan, Joe
- 1/26/99 Meet with Northwest Fish Culture Conference team in Portland to plan for 50th NWFCC, Portland, OR, Ed
- 1/27/99 LSRCP AOP Meeting with ODFW, NPT, CTUIR in LaGrande, OR, Joe
- 1/27/99 BPA/FWS Direct Funding MOU with BPA and FWS regional office staff in Portland, OR, Ed, Dan
- 1/31/99 Presentation of LSRCP Status Review Symposium summary for Idaho Steelhead and Salmon Unlimited Board of Directors, in Boise, ID, Ed, Dan
- 2/1-2/99 Smolt production workshop, Olympia, WA, Ed
- 2/3/99 Presentation to Ada County Fish and Game League on the LSRCP Status Review Symposium in Boise, ID, Dan

2/2-4/99 CRFMP Renegotiations - subbasin planning with ODFW, CTUIR, NMFS in LaGrande, OR, Joe

2/5/99 FY1999 budget allocations with Rich Carmichael and Peter Lofy in LaGrande, OR, Dan

2/5/99 Bull trout consultations with ODFW at Lookingglass FH in Elgin, OR, Joe

2/8/99 R.O. staff meeting in Boise to discuss LSRCP programs, Ed

2/9-10/99 Hagerman LSRCP production review and coordination program with IDFG, NPT, Sho-Ban Tribe Ed

2/9-10/99 CRFMP Renegotiations - Salmon River with Sho-Ban Tribes, IDFG, NMFS, FWS in Boise, ID, Dan

2/11/99 Salmon and Steelhead Days planning meeting with IDFG, BOR, BPA, NMFS at IDFG Vista Room, Boise, ID, Ed

2/17/99 Columbia Fisheries Briefing with Peter Unhoffer, Secretary Babbitt's Office, Julie Gordon, Tim Roth, Judy Maule, Lee Hillwig, Chuck Dunn, in Portland, OR, Ed

2/22-23/99 NWFCC program committee meeting, Seattle, WA, Ed

2/24/99 Personnel issues team meeting in Leavenworth NFH, Leavenworth, WA, Ed

2/26/99 Johnson Creek MOU development for operation of an expanded fish production facility at McCall FH, Boise meeting with NPT, BPA, IDFG, Ed

3/8/99 Fall chinook acclimation facility problems and correction of deficiencies with COE, NPT, in Walla Walla, WA, Ed

3/17/99 Dworshak NFH Coordination meeting with FWS, IDFG, NPT, USGS at Dworshak NFH, Ed

3/24/99 Andrus Center for public policy meeting - public lands meeting - all federal agencies, Boise, ID, Ed

3/25/99 Brief Regional Director and RO staff on LSRCP programs in Boise, ID, Ed, Dan

4/9/99 Discussed budgets with Sharon Kiefer, Tom Rogers, IDFG at IDFG Headquarters in Boise, ID, Ed, Dan

4/9/99 Conference call with NMFS and Lee Hillwig on BO on hatchery operations review and comment on BPA's, Ed, Dan, Joe

4/15/99 BPA/FWS MOA meeting with BPA, NWPPC representative in Portland, OR, Ed, Dan

4/19-21/99 Columbia River fish management plan renegotiations with WDFW, ODFW, IDFG, Columbia River Treaty Tribes, SBT, NMFS, FWS in Portland, OR, Joe

4/21-22/99 Attended Congress and Field office training, Atlanta, GA, Ed, Dan

4/26/99 M&E plans for NEOFH and LSRCP with NPT, ODFW, CRITFC at Enterprise, OR, Dan

4/27/99 Lookingglass FH program review with NPT, ODFW, Montgomery Watson in Boise, ID, Ed

5/17-19/99 CRFMP Renegotiations with Columbia River treaty tribes, NMFS, WDFW, ODFW, IDFG, SBT in Portland, OR, Joe

5/17-19/99 Brief NWPPC on LSRCP activities, Whitefish, Montana, Ed

5/21-24/99 Idaho Conservation League meeting, Stanley, ID, Ed

5/22/99 Briefing with Regional Director on CRFMP negotiations with Regional Director and Assistant Regional Director for FWS in Portland, OR, Joe

5/25/99 Lookingglass FH Review with Montgomery Watson, NPT, ODFW, CTUIR at LSRCP Office in Boise, ID, Ed

5/26/99 CRFMP fall harvest negotiations in Vancouver, WA, Joe

6/7/99-23/99 CRFMP Renegotiations in Portland, OR, Joe
6/29-30/99 Federal Property inventories at Lyons Ferry FH, Tucannon FH and WDFW evaluation team in Dayton, WA, Tammy, Margaret
6/29-7/1/99 CRFMP Renegotiations in Portland, OR, Joe
7/7-8/99 CRFMP Renegotiations in Portland, OR, Joe
7/9/99 Hagerman Lab Dedication ceremonies at Hagerman, IDFG, U of I, Idaho Aquaculture Association, FWS, State Legislative representatives, Ed, Dan
7/12-13/99 Meeting with Western Division and American Fisheries Society in Moscow, ID, Dan, Joe
7/21/99 Meeting with Regional Solicitors office representatives regarding BPA/FWS MOA, Boise, ID, Ed
7/22-23/99 NMFS Workshop on Life Cycle Models for 4-H assessment in Montlake, WA, Dan
7/26/99 Sawtooth FH broodstock management meeting with NPT, NMFS, IDFG, Ed
7/26/99 Sawtooth FH broodstock management for 1999 with IDFG, NPT, SBT, NMFS in Boise, ID, Joe
7/27/99 Develop action plans for permanent Columbia Basin Ecoregion Steering Committee with RO and field Interim Ecoteam members in Vancouver, WA, Dan
7/27/99 Salmon and Steelhead Days meeting with IDFG, BPA, BOR, USFS, BLM at IDFG Headquarters in Boise, ID, Ed
7/29/99 Hart Mountain NAR pronghorn/coyote issue meeting with Don Campton, Hart Mountain NAR and Regional and Washington D.C. refuge personnel in Portland, OR, Dan
8/3/99 Personnel issues team meeting, Leavenworth, WA, Ed
8/4/99 Meet with WDFW representatives in Olympia regarding LSRCP, Ed
8/10/99 Planning for 1999 Salmon and Steelhead Days with S&S Committee at IDFG Headquarters in Boise, ID, Dan, Ed
8/11/99 Stream Survey training, IDFG, Stanley, ID, Ed
8/17/99 Hatchery genetics management plan meeting with NPT, CTUIR, ODFW, WDFW, IDFG, Pendleton, OR, Ed, Joe
8/26/99 FIS and other information management with FWS, Information Management Assessment Team in Portland, OR, Ed
9/1-2/99 Spawning surveys - Minam and Lostine Rivers with ODFW and tribes, Ed, Dan
9/7-10/99 Spawning surveys - NE Oregon, with ODFW and tribes, Joe
9/7/99 Johnson Creek/McCall FH expansion meeting with IDFG, NMFS, NPT at McCall, ID, Ed
9/14/99 Government Improvement Productivity Act (GIPRA) with FWS at Doubletree Lloyd Center in Portland, OR, Ed
9/15/99 Direct Funding MOU with BPA, RO, Diggs, Phil Keys, Austin and Others in Portland, OR, Ed, Dan
9/21/99 FY2000 evaluation studies with IDFG research and management staff in Boise, ID, Dan

- 9/24/99 Grande Ronde River steelhead HGMP meeting with ODFW, CTUIR, NPT, NMFS, USFWS in LaGrande, OR, Joe
- 9/24/99 Magic Valley FH review meeting, in Filer, ID, Ed
- 9/27-28/99 CRFMP Renegotiations with Columbia River Treaty Tribes, ODFW, WDFW, IDFG, NMPS, FWS in Portland, OR, Joe
- 9/30/99 Johnson Creek program meeting with USFS representatives in Boise, ID, Ed

TRAINING

Ed Crateau

Congress and the Field Office 4/22-23/99

Dan Herrig

Congress and the Field Office 4/22-23/99

Joseph Krakker

None

Margaret Anderson

Survival Skills - 5/99

New Employee Training 1/98

Budget BTS Training 11/98

Tammy Froscher

Simplified Acquisition Refresher 10/25-28/99

Administration Training 3/2-4/99



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TABLE 1. LOWER SNAKE RIVER COMPENSATION PLAN ACTIVITIES FOR FY 1999

INSTALLATION/PROGRAM	FUNDING LEVELS	SPECIES	TYPE	FISH RELEASED																																																	
				NUMBERS	POUNDS																																																
STATE OF IDAHO PROGRAMS																																																					
McCALL FH and SOUTH FORK SATELLITE	\$356,166	SUCS	SMOLTS	1,182,611	49,400																																																
		SUCS	FINGERLING	263,490	3,655																																																
		SUCS	EGGS	120,339																																																	
SAWTOOTH FH and EAST FORK SATELLITE	\$628,511	SPCS	SMOLTS	223,240	10,006																																																
MAGIC VALLEY FH	\$662,656	STT	SMOLTS	1,941,406	471,608																																																
		STT	FINGERLING	128,801	8,779																																																
CLEARWATER FH and SATELLITE FACILITIES	\$1,357,387	SPCS	SMOLTS	2,053,422	134,065																																																
		SPCS	FRY	164,280	6,567																																																
		STT	SMOLTS	591,004	113,532																																																
FISH MARKING	\$250,891																																																				
IDFG EVALUATIONS	\$533,690																																																				
IDFG ESA COORDINATOR	\$39,716																																																				
EAGLE LAB	\$333,036																																																				
REARING RESIDENT FISH (NON LSRCP FUNDS)	\$186,520																																																				
STATE OF OREGON PROGRAMS																																																					
LOOKINGGLASS FH and IMNAHA SATELLITE	\$762,981	SPCS	FRY	57,290	450																																																
		SPCS	SMOLTS	507,112	25,164																																																
IRRIGON/WALLOWA FH and LITTLE SHEEP/BIG CANYON	\$1,164,968	STT	SMOLTS	1,723,964	333,861																																																
		STT	FINGERLING	155,005	1,285																																																
FLOOD DAMAGE																																																					
ODFW EVALUATIONS	\$560,398																																																				
ODFW PATHOLOGY LAB	\$111,430																																																				
STATE OF WASHINGTON PROGRAMS																																																					
LYONS FERRY FH	\$2,359,269	SPCS	SMOLTS	24,186	1,548																																																
		FCS	FINGERLING	961,033	11,610																																																
		FCS	SMOLTS	967,381	98,462																																																
		STT	SMOLTS	836,535	189,938																																																
		STT	FINGERLING	342,613	6,415																																																
		RBT	FINGERLING	197,716	5,416																																																
		RBT	CATCHABLE	185,751	60,988																																																
TUCANNON FH	\$274,658	RBT	CATCHABLE	141,715	46,367																																																
		RBT	FINGERLING	75,689	812																																																
FLOOD DAMAGE (NON LSRCP FUNDS)	\$43,120																																																				
FUEL TANK REPLACEMENT	\$111,851																																																				
FUEL TANK REPLACEMENT (NON LSRCP FUNDS)	\$4,933																																																				
WDFW EVALUATIONS	\$574,689																																																				
TRIBAL PROGRAMS																																																					
CTUIR EVALUATIONS	\$221,644																																																				
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NPT BIG CANYON O&M	\$0				(Direct-funded by BPA, fish reared at Lyons Ferry)																																																
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FISH AND WILDLIFE SERVICE PROGRAMS																																																					
HAGERMAN NFH	\$685,615	STT	SMOLTS	1,210,015	275,530																																																
DWORSHAK NFH	\$377,400	SPCS	SMOLTS	1,044,511	49,787																																																
IDAHO FHC	\$95,900																																																				
COLUMBIA RIVER COORD.	\$80,000																																																				
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TOTAL OBLIGATED	\$13,354,110																																																				
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RBT=RAINBOW TROUT, FCS=FALL CHINOOK, SPCS=SPRING CHINOOK, SUCS=SUMMER CHINOOK, STT=STEELHEAD

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Table 2. Pertinent Data for Lower Snake River Fish and Wildlife Compensation Plan Fish Hatchery Facilities.

Hatchery (Operator) ^a	Fish Type	Pound	Total Cost (\$1,000)	Satellite Facilities	Date of Completion
Lookingglass (ODFW)	Spring Chinook	69,600	\$ 8,993	Big Canyon Ck. Imnaha	Nov. 82
			\$ 2,763		Apr. 87
			\$ 1,525		Jul. 89
Irrigon/Wallowa (ODFW)	Steelhead	279,600	\$15,646	(Wallowa) ^b Little Sheep Ck (Big Canyon Ck)	Oct. 85
			\$ 3,230		May 85
			\$ 2,545		Aug. 87
Lyons Ferry:			\$31,831 ^c		
Phase I (WDW)	Steelhead	116,400			Nov. 83
	Trout	45,000			
			\$ 801	Cottonwood	Feb. 85
Phase II (WDF)	Trout	41,000	\$ 1,182	Dayton Pond	Oct. 86
			\$ 4,235	Tucannon FH	Nov. 84
	Fall Chinook	101,800	\$ 230	Curl Lake	Feb. 85
	Spring Chinook	8,800			Nov. 84
Sawtooth (IDFG)	Spring Chinook	149,000	\$13,543	E.Fk. Salmon R.	Jan. 85
			\$ 2,067		Nov. 83
Dworshak (FWS)	Spring Chinook	70,000	\$ 2,234		Nov. 82
Clearwater (IDFG)	Steelhead	350,000	\$37,128	Red River Crooked River Powell	Dec. 91
			\$ 1,651		Nov. 86
			\$ 2,054		May 90
Magic Valley (IDFG)	Steelhead	291,500	\$19,520	(Sawtooth) (East Fork)	Aug. 89
Hagerman (FWS)	Steelhead	340,000	\$ 9,801	(Sawtooth) (East Fork)	Apr. 84
McCall (IDFG)	Summer Chinook	61,300	\$ 5,741	S.Fk. Salmon R.	Sep. 81
			\$ 1,149		Jul. 80
Eagle Lab (IDFG)	Disease Diagnostic		\$ 1,300		Apr. 89

\$171,489

^a ODFW - Oregon Department of Fish and Wildlife

WDFW - Washington Department of Wildlife

WDFW - Washington Department of Fisheries

IDFG - Idaho Department of Fish and Game

FWS - U.S. Fish and Wildlife Service

^b Parentheses used when dual-use hatchery/satellite is listed a second or third time.

^c Total cost of Lyons Ferry Phases I and II

Table 3. Hatchery or trap rack returns to LSRCF hatcheries operating in 1998 and 1999.

<u>Species/Hatchery</u>	<u>Hatchery/Trap Adults</u>	<u>Returns Jacks</u>	
Summer Chinook			
McCall FH/South Fork	1,218	743	= 1961
Spring Chinook			
Clearwater FH ¹	80	264	= 344
Sawtooth FH	117	79	=
East Fork Trap	na	na	= 196
Lookingglass FH ²	43	23	66
Imnaha Trap	209	187	396
Big Canyon Trap	0	0	
Grande Ronde River ³	1		1
Lostine River ³	12		12
Catherine Creek ³	16		16
Dworshak NFH ⁴	215	742	957
Tucannon FH	91	45	136 / 2124
Fall Chinook			
Lyons Ferry FH ⁵	2,976	638	3614
Steelhead Trout			
Irrigon FH:			
Wallowa FH	1,168		
Little Sheep Trap	343		
Big Canyon Trap	601		
Lyons Ferry FH	2,973		
Cottonwood Creek Trap, WA	248		
Hagerman NFH/Magic Valley FH ⁶	989		
Crooked River Trap, ID	10		
Red River Trap, ID	0		

5738
 All checks 7,699

6338

¹ Returns to Powell, Red River and Crooked River traps only.
² Does not include those trapped at Lower Granite Dam.
³ Endemic broodstock program.
⁴ Dworshak and Kooskia returns.
⁵ Includes ladder returns plus Lower Granite trapping (including strays).
⁶ Includes returns to East Fork, Slate Ck., and Sawtooth FH racks.

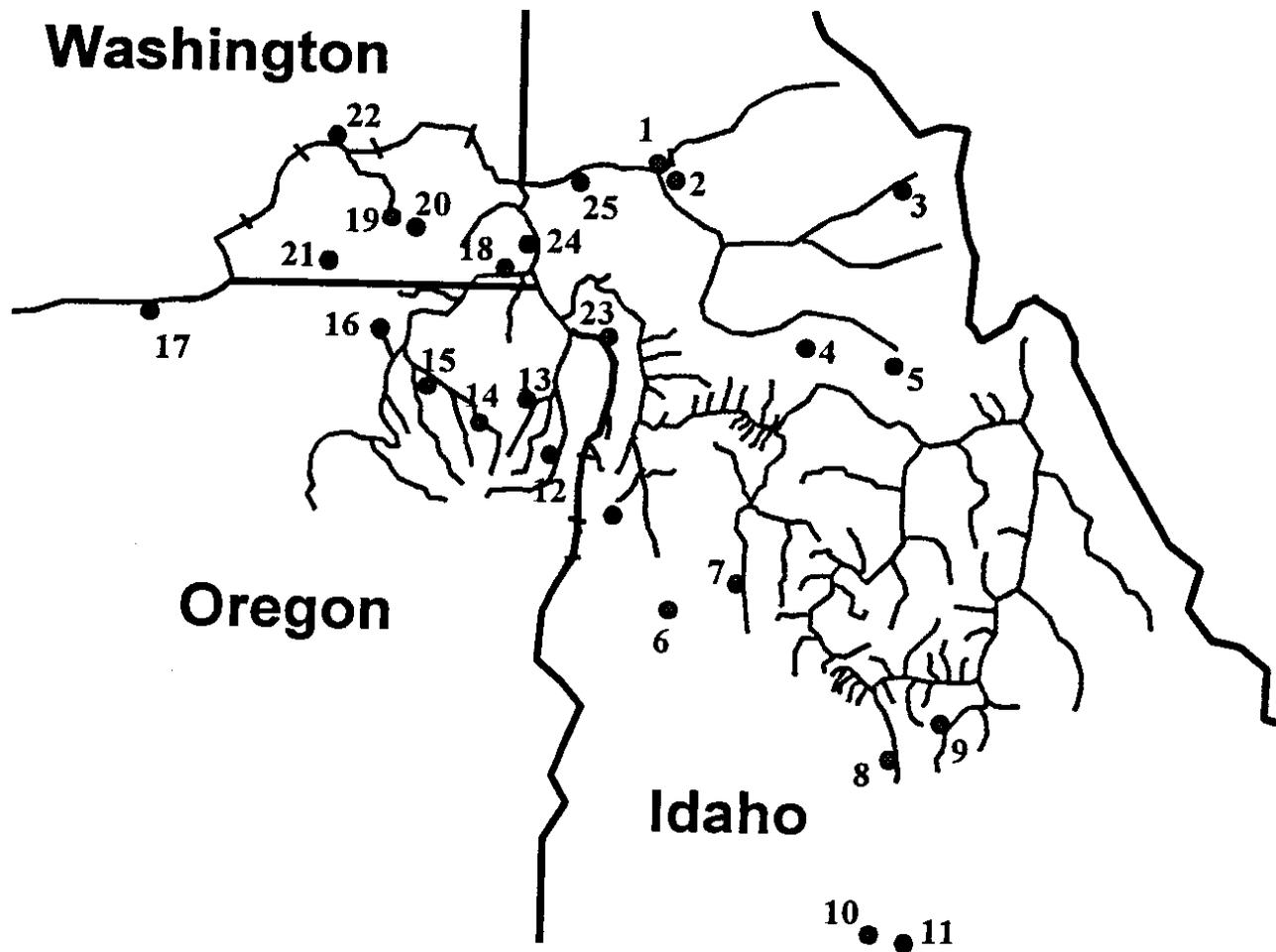


Figure 1. Location of LSRCP facilities

Idaho Department of Fish and Game

- 3. Clearwater Fish Hatchery (FH)
- 3. Powell Satellite Facility (SF)
- 4. Crooked River SF
- 5. Red River SF
- 6. McCall FH
- 7. South Fork Salmon River SF
- 8. Sawtooth FH
- 9. East Fork SF
- 11. Magic Valley FH

Nez Perce Tribe

- 23. Pittsburg Landing SF
- 24. Captain Johns SF
- 25. Big Canyon SF

Oregon Department of Fish and Wildlife

- 12. Imnaha SF
- 13. Little Sheep Creek SF
- 14. Wallowa FH SF
- 15. Big Canyon SF
- 16. Lookingglass FH
- 17. Irrigon FH

Washington Department of Fish and Wildlife

- 18. Cottonwood Creek SF
- 19. Tucannon FH SF
- 20. Curl Lake SF
- 21. Dayton Pond SF
- 22. Lyons Ferry FH (salmon and trout)

Fish and Wildlife Service

- 2. Dworshak NFH Expansion
- 10. Hagerman NFH